REMARKS

The rejection of claim 9 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is now believed moot. The corresponding new claim 32 now clearly defines the adhesion layer as an additional layer separate from the layers recited in claim 1.

The rejection of claims 1-2, 4, 6, 7, 9-11, 13, 18 and 20 under 35 USC 102(b) as being anticipated by Nakazato, et al (EP 0410679) is respectfully traversed. This rejection will be treated as a rejection under 35 USC 102(b) of the newly-submitted claims 25-41. The method as now defined in claim 25 involves providing the first main layer with a first stress adaptation layer and providing at least a second stress adaptation layer between the second main layer and the first stress adaptation layer, with the layers assembled through the stress adaptation layers such that stress is exerted on the main layers to cause the main layers to assume a flat, convex or concave geometry based upon the thickness of the adaptation layers, the number of adaptation layers and adherence. The adaptation layers cause deformation of the main layers which control deflection of the main layers thereby controlling the geometry assumed by the multilayer structure i.e., convex, concave or flat. This is entirely different from the teaching in Nakazato, et al in which a first silicon wafer and a second silicon wafer are bonded together with a silicon oxide film interposed between them and with the wafers warped before bonding occurs. The wafers are warped on purpose before they are bonded such that after bonding, the structure will be flat. This is a different methodology from that taught in claim 25 and accordingly, the rejection of claim 25 under 35 USC 102(b) should be withdrawn. All of the other claims 26-41 depend from claim 25 and are therefore believed patentable for the same reasons as given above.

The Examiner has also rejected claims 1-2, 4-18 and 20 under 35 USC 102(b) as being anticipated by Sato, et al (U.S. 5,854,132). Applicant will treat this rejection as a rejection of the new claims 25-41 under 35 USC 102(b).

Sato, et al discloses a method for producing a semiconductor substrate which comprises the formation of a layer of micro cavities in a layer of the substrate which has been rendered porous and is separated from the substrate along the layer of micro cavities. This patent does not teach the formation of adaptation layers which will control the stress on the multilayer structure to control the deflection of the structure for forming a flat, convex or concave geometry. Stated otherwise, there is no objective in Sato, et al to control the geometry of the multilayer structure and no teaching of stress adaptation layers to do this. Accordingly, Sato, et al is not considered relevant to the invention as claimed in claims 25-41 and the rejection under 35 USC 102(b) should be withdrawn.

The Examiner has also rejected claims 3 and 24 as being obvious under 35 USC 103(a) in view of Sato, et al. Applicant will treat this rejection as a rejection of the corresponding claims which are dependent upon claim 25. As stated above in connection with claim 25, Sato, et al does not teach the formation of stress adaptation layers and does not teach a method for controlling the geometry of the multilayer structure. For the Examiner to allege that it would have been obvious for someone skilled in the art based upon the Sato teaching to try to control the geometry of the resultant multilayer structure by combining the layers in such a manner so as to minimize the amount of warpage requires the use of hindsight which is clearly contrary to 35 USC 103. Accordingly, the rejection of obviousness based upon the teaching of Sato, et al should be withdrawn. The same is true for the rejection of claim 19 in view of the combination of Sato, et al and Egloff (U.S. 5,909,627) under 35 USC 103 which applicant will treat as a rejection of corresponding claim 39.

Applicant acknowledges that the Examiner admits that Sato is silent regarding the formation of a stress adaptation layer. However, not only is Sato silent regarding the formation of a stress adaptation layer, Sato is also silent regarding control of the geometry of the multilayer structure by means of using stress adaptation layers. For the Examiner to combine the ion implementation teaching in Egloff requires hindsight based upon the teaching of applicant for utilizing stress adaptation layers in the control of the geometry of a multilayer structure. Accordingly, the rejection of claim 38 based upon obviousness in view of Sato and Egloff should be withdrawn.

Reconsideration and allowance of claims 25-41 is respectfully solicited.

Respectfully submitted,

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Date: Dec. 2, 2003

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CLAIMS

1-20 (Canceled)

21. (Withdrawn) The structure according to claim 20, characterized in that the stack further includes a bonding layer located between the stress adaptation layers or between one of the stress adaptation layers and a matching main layer.

22 (Withdrawn) The structure according to claim 20, having a suspended membrane, the suspended membrane (244) including at least a portion of one of the first and second main layers, released from the second main layer, from the first main layer, respectively.

23 (Withdrawn) The structure according to claim 22, wherein the suspended membrane (244) further comprises at least one superconducting material layer (248) covering said portion of one of the first and second main layers.

24. (Canceled)

25. (New) Method for producing a multilayer structure having a defined geometrical orientation from at least a first main layer and a second main layer comprising the steps of:

(a) providing the first main layer with a first stress adaptation layer and providing at least a second stress adaptation layer between the first stress adaptation layer and the second main layer;

(b) wherein said first and second main layer is assembled via the stress adaptation layers such that stress is exerted on said main layers to cause the multilayer structure to assume a predetermined geometrical orientation selecting from the goup consisting of: convex or concave geometry based upon the thickness, number and adherence of the adaptation layers.

26. (New) The method according to claim 25, further comprising the step of forming an adherence bond between said first and second main layer.

27. (New) The method according to claim 25, wherein the first adaptation layer is formed from a main layer and the second adaptation layer is formed from a main layer or from the first adaptation layer with each adaptation layer having a thickness to cause stress in the first and second main layers resulting in deformation in opposite directions, respectively.

28. (New) The method according to claim 25, further comprising forming molecular bonding between layers.

29. (New) The method according to claim 28, wherein said molecular bonding is performed for adjusting the surface condition of the molecular layers.

30. (New) The method according to claim 28, wherein during step b), the molecular bonding is performed at room temperature.

31. (New) The method according to claim 26, wherein said adherence bond is formed using a bonding technique selected from the group consisting of: brazing, welding, interdiffusion between layers, and bonding with an adhesive substance.

32. (New) The method according to claim 25, further comprising interposing an additional adhesion layer between said main layers.

33. (New) The method according to claim 25, wherein during step a), the first stress adaptation layer (130, 220) is formed on the first main layer (110a, 210a) and the second stress adaptation layer (120, 230) is formed on the second main layer (110b, 210b), and wherein during step b), molecular bonding is performed between the stress adaptation layers.

34. (New) The method according to claim 25, wherein the first and second stress adaptation layers are formed on the first main layer and wherein the second main layer is boned to one of the first and second stress adaptation layers.

35. (New) The method according to claim 25, further comprising the step of treating at least one of the main layers after assembly to cause thinning.

36. (New) The method according to claim 35, wherein said thinning of a main layer is formed from fracturing of said layer to form a fracture area.

37. (New) The method according to claim 36, further comprising the step of implanting a gas species in at least one of the first or second main layers to induce a

fracture area (112, 212) therein, and wherein the treating step is a thermal and/or mechanical treatment.

38. (New) The method according to claim 25, wherein at least one stress adaptation layer is formed by a method selected from the group consisting of: spry, epitaxy, chemical deposition, chemical vapor deposition, low pressure vapor deposition and plasma vapor deposition.

39. (New) The method according to claim 25, wherein at least one stress adaptation layer is obtained by surface oxidization of a main layer.

40. (New) The method according to claim 25, wherein at least one stress adaptation layer is obtained by implanting species in a main layer.

41. (New) The method according to claim 25, wherein the main layers are composed of at least one material selected from silicon, germanium, silicon carbide, III-V type semiconductors, II-VI semiconductors, glass, superconductors, diamond, ceramic materials ($LiNbO_3$, $LiTaO_3$), and quartz.